

CLAIMS:

1. A method for the detection and quantification of a protein of interest comprising:
 - 5 immobilizing the protein of interest on a substrate, the protein comprising an epitope and another portion;
 - contacting the immobilized protein with a labeled ligand that binds to the epitope to yield a detectably labeled protein;
 - detecting the detectably labeled protein; and
 - 10 quantifying the detectably labeled protein.
2. The method of claim 1 wherein the ligand is a monoclonal or polyclonal antibody.
3. The method of claim 2 wherein the contacting step is not repeated with a second antibody.
- 15 4. The method of claim 2 wherein the protein is a recombinant protein tagged with an amino acid sequence that serves as a recognition site for the labeled antibody.
5. The method of claim 2 wherein the antibody is a chromophore-labeled antibody.
- 20 6. The method of claim 1 wherein the detecting step comprises detecting with a phosphor autoradiography imager.
7. The method of claim 1 wherein the quantifying step employs an internal standard.
8. The method of claim 7 wherein the internal standard is a
25 second protein comprising the epitope and a second portion, wherein the second portion is different from the portion of the protein of interest.
9. A method for the detection of a protein comprising:
 - immobilizing a protein comprising an epitope on a substrate;
 - contacting the immobilized protein with a chromophore-labeled
30 antibody that binds to the epitope to yield a detectably labeled protein; and
 - detecting the detectably labeled protein with a phosphor autoradiography imager,

wherein the contacting step is not repeated with a second antibody prior to the detecting step.

10. The method of claim 9 wherein the protein is a recombinant protein tagged with an amino acid sequence that serves as a recognition site for the
5 labeled antibody.

11. The method of claim 9 further comprising the step of quantifying the detected detectably labeled protein.

12. The method of claim 9 further comprising simultaneously performing the immobilizing, contacting, and detecting steps on a plurality of proteins
10 for high throughput detection.

13. A method for detecting a P450 protein comprising: /
providing a recombinant P450 protein comprising an epitope;
contacting the P450 protein with a labeled ligand that binds to the epitope to yield a detectably labeled P450 protein; and
15 detecting the detectably labeled P450 protein.

14. The method of claim 13 further comprising the step of quantifying the detected detectably labeled P450 protein.

15. The method of claim 13 wherein the epitope is a non-native sequence provided at the amino terminus of the P450 protein.

20 16. The method of claim 15 wherein the epitope comprises a FLAG sequence.

17. The method of claim 16 wherein the ligand comprises an anti-FLAG M2 monoclonal antibody.

25 18. The method of claim 13 wherein the labeled ligand comprises a chromophore-labeled antibody.

19. The method of claim 18 wherein the chromophore comprises a fluorescent chromophore.

20. The method of claim 19 wherein the detecting step comprises detecting fluorescence using a phosphor autoradiography imager.

30 21. The method of claim 13 wherein the recombinant P450 protein is provided in a crude extract.

22. A detectably labeled molecular complex comprising: /

a P450 molecule comprising a FLAG epitope; and
a chromophore-labeled ligand bound to the FLAG epitope.

23. The detectably labeled molecular complex of claim 22 wherein the chromophore-labeled ligand comprises an antibody.

5 24. The detectably labeled molecular complex of claim 23 wherein the antibody comprises an anti-FLAG M2 monoclonal antibody.

25. A kit for the detection and quantification of a protein comprising

10 a sample of a standard protein, wherein the standard protein comprises an epitope and the sample is of a known concentration of the standard protein, and an aliquot of a labeled primary antibody having specificity for the epitope.

26. The kit of claim 25 further comprising an instruction manual for quantifying an unknown amount of a second protein, the second protein
15 comprising the epitope, precast SDS-page gels, precut membrane, and reagents..

27. The kit of claim 25 wherein the labeled primary antibody is labeled with a chromophore.

28. The kit of claim 25 further comprising a plurality of additional samples of the standard protein, each additional sample comprising a different known
20 concentration of the standard protein.

29. The kit of claim 25 further comprising
a plurality of samples of different standard proteins, wherein each standard protein comprises a different epitope, and each sample is of a known concentration of its respective standard protein, and
25 a plurality of additional aliquots of different labeled primary antibodies, each different labeled primary antibody having specificity for its respective epitope on one of the standard proteins.